

REMARKS

Claims 1 - 21 are pending. Applicants acknowledge that claims 1 - 2 and 20 - 21 are allowed.

Claim Rejections Under 35 U.S.C §112, Second Paragraph

Claims 10 - 19 stand rejected as allegedly being indefinite. Applicants have amended claims 10, 11, 15 and 16 to remove these rejections. Consequently, Applicants respectfully submit that these amendments be entered and the rejections should be withdrawn.

In addition, Applicants respectfully submit that these and other amendments do not narrow the scope of the claims, because, e.g., they merely make explicit what is inherent.

Prior Art Rejections

Claims 3 - 5, 7 and 8 stand rejected as allegedly being anticipated by U.S. Patent No. 6,656,660 B1 (Urano) and claims 6 and 9 stand rejected under 35 U.S.C §103(a) as allegedly being unpatentable over Urano in view of U.S. Patent No. 5,843,624 (Houlihan).

The Action alleges that these claims are written in product-by-process claim language, and as a consequence, if the product in the product-by-product claim is the same as or obvious from the product in the prior art, the claim is unpatentable even though the prior art product was made by a different process. Applicants respectfully traverse these rejections.

At the outset, Applicants respectfully submit that claim 3 is improperly treated as a product-by-process claim. Particularly, claim 3 is a method claim that depends from allowed claim 1. Consequently, Applicants respectfully submit that this claim should be indicated as allowed in the next paper from the Office.

Claims 4 - 9 are asserted to be product-by-process claims. However, the burden shifts to the Applicant to show an unobvious difference only when such a product appears to be substantially identical. See M.P.E.P. §2113. In the present case this is not true. The

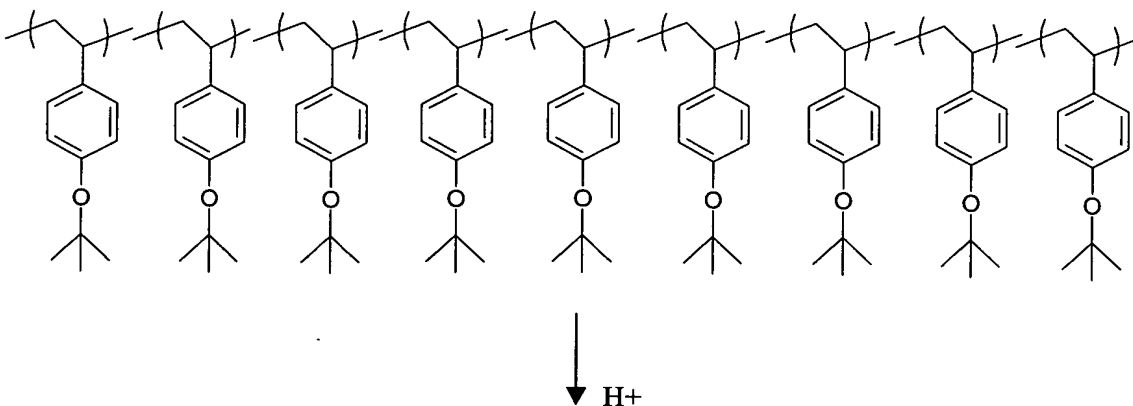
polymers according to the present invention exhibit a randomly deblocked structure not produced in the methods of Urano.

As an example, Urano discloses a radical polymerization method in production example 1 and an ionic polymerization method in production example 4. See the first two steps of production example 1 at column 38, lines 14-40 and the first two steps of production example 4 at column 39, lines 63 - column 40, line 23.

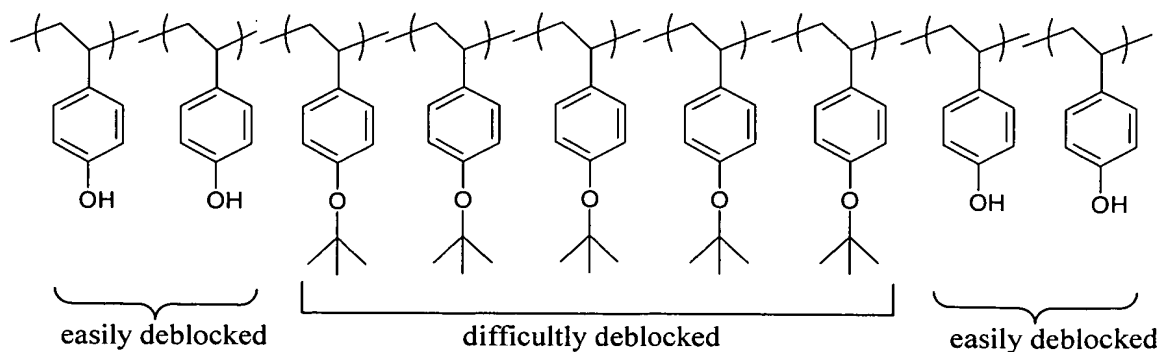
As is apparent from the methods of both these examples, step (1) produces a poly(p-tert-butoxystyrene) and step (2) produces a poly(p-hydroxystyrene/p-tert-butoxystyrene) by deblocking as shown below.

In case of deblocking the tert-butoxy groups in the poly(p-tert-butoxystyrene) in step (2), the deblocking occurs from both the end positions because the end positions are easily deblocked as compared with the middle positions.

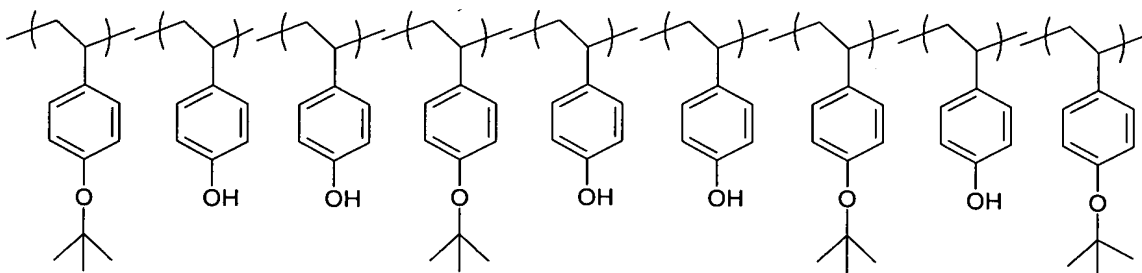
Step (1)



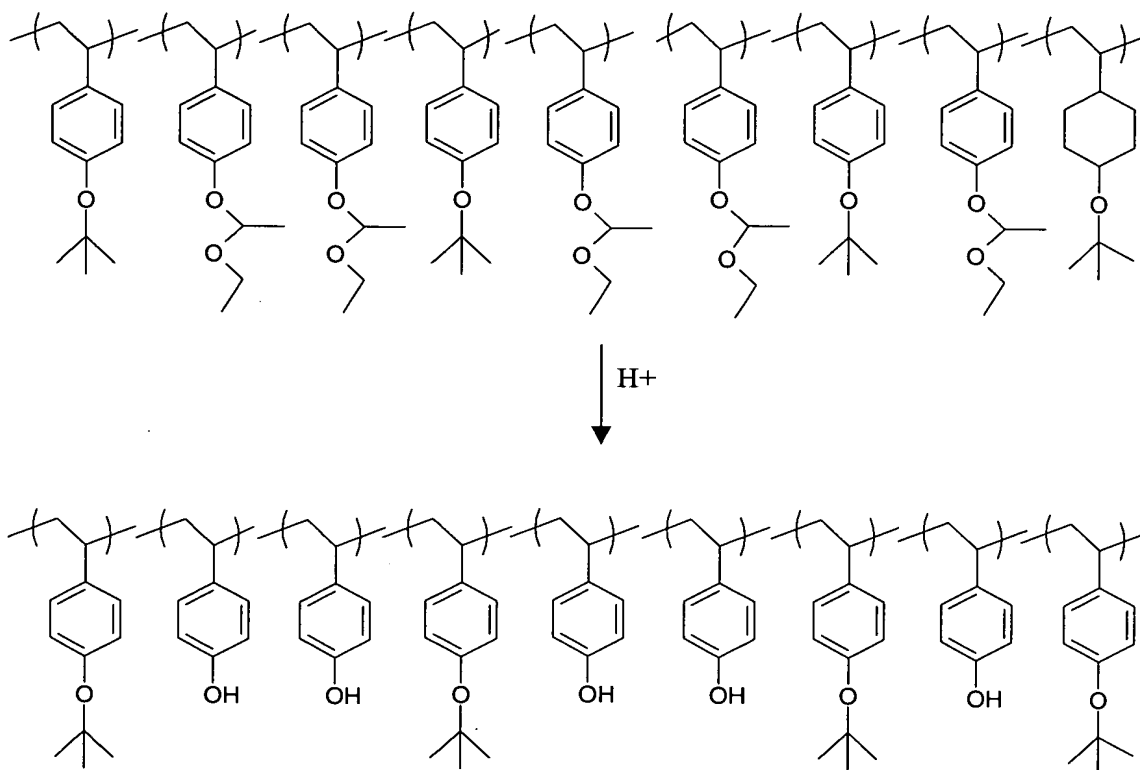
Step (2)



Accordingly, the following random poly(p-hydroxystyrene/p-tert-butoxystyrene) will not be produced in the examples disclosed in Urano.



On the other hand, in the present invention, an ethoxyethoxystyrene and tert-butoxystyrene are polymerized, thereby obtaining a random copolymer as shown below. Thereafter, the ethoxy-ethoxy groups are selectively deblocked as shown below to produce a random poly(p-hydroxystyrene/p-tert-butoxystyrene).



Accordingly, the polymer prepared by the inventive method is structurally different from the polymer prepared by Urano. Any presumption derived from product-by-process caselaw is thus overcome.

To further illustrate the differences between the polymers of Urano and the present invention, in the preparation of p-hydroxystyrene/1-ethoxy-n-propoxystyrene/tert-butyl methacrylate copolymer, Urano synthesizes poly(p-acetoxystyrene/tert-butyl methacrylate) and then hydrolyzes it in an alkali solution, as shown in production example 28. The polymer obtained by such a preparation method has a M_w/M_n of 1.6 or more.

On the other hand, the inventive method prepares a polymer having a Mw/Mn of 1.5 or less, as is proved by synthesis examples 1 - 8. See pages 29-37.

Additionally, Urano's p-hydroxystyrene/1-ethoxy-n-propoxystyrene/tert-butyl methacrylate is only prepared by radical polymerization, and thus, a narrowly-distributed polymer is difficult to prepare. Therefore, the inventive polymer is also different from the polymer of Urano on this point.

Consequently, in view of the above, Applicants respectfully submit that the polymers of the present invention exhibit a different structure than the polymers disclosed in Urano. Consequently, Applicants respectfully submit that the prior art rejections should be withdrawn.

In view of the above, favorable reconsideration is courteously requested. If there are any remaining issues which can be expedited by a telephone conference, the examiner is courteously invited to telephone counsel at the number indicated below.

July 6, 2004

Reply to Office Action of April 6, 2004

Page 14

The Commissioner is hereby authorized to charge any fees associated with this response or credit any overpayment to Deposit Account No. 13-3402.

Respectfully submitted,

James E. Rutland, Reg. No. 37,432
Attorney for Applicants

MILLEN, WHITE, ZELANO &
BRANIGAN, P.C.
Arlington Courthouse Plaza 1, Suite 1400
2200 Clarendon Boulevard
Arlington, Virginia 22201
Telephone: (703) 243-6333
Facsimile: (703) 243-6410

Attorney Docket No.: KOJIM-442

Date: July 6, 2004

JER/jqs

K:\kojim\442\Reply 7-6-04.doc

KOJIM-442